The North American Drought Monitor: History, Concept, Goals, and Process

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University of Nebraska-Lincoln
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North American Drought Monitor Forum
May 1-3, 2018
Calgary, Alberta, Canada

History of the North American Drought Monitor (NADM)

- The concept for the NADM was developed and discussed in 2002
- The first NADM map was released in March 2003
- The first NADM map in all three languages (English, Spanish, and French)was released in October 2003

History of the North American Drought Monitor (NADM)

- The United States started off as the only country to author and organize the map
- Canada began authoring in January 2006
- Mexico began authoring in October 2008

North American Drought Monitor Partners

- **Canada (2 shifts per year)**
  - Agriculture and Agri-Food Canada
  - Environment and Climate Change Canada
- **Mexico (2 shifts per year)**
  - CONAGUA (Comision Nacional del Agua)
- **United States (8 shifts per year split between agencies)**
  - National Drought Mitigation Center (NDMC)
  - National Centers for Environmental Information (NCEI)
  - NOAA's Climate Prediction Center (CPC)
  - United States Department of Agriculture (USDA)

USDA

NDMC National Drought Mitigation Center University of Nebraska

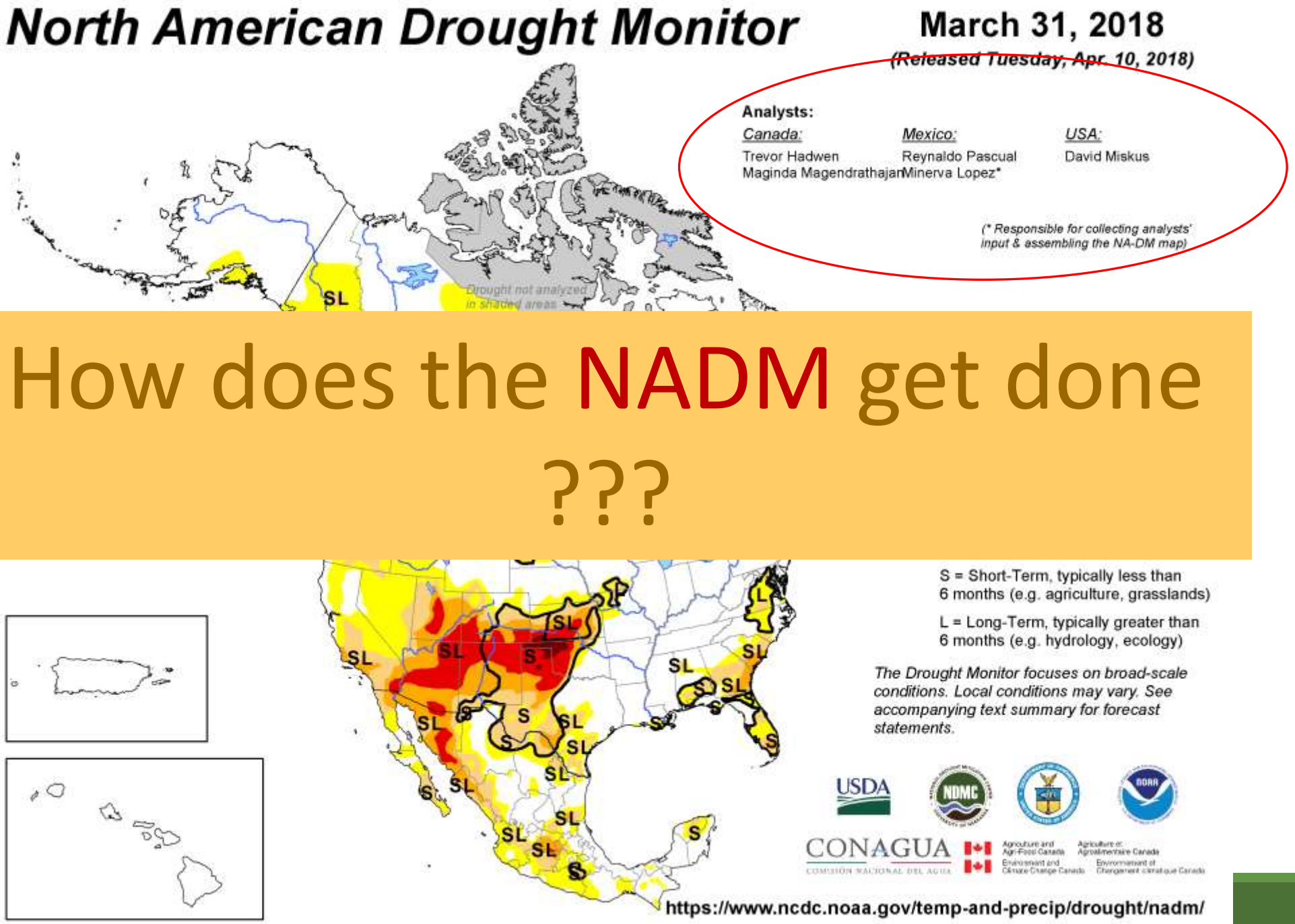
Department of Commerce United States of America

NOAA National Oceanic and Atmospheric Administration U.S. Department of Commerce

CONAGUA Comisión Nacional del Agua

Agriculture and Agri-Food Canada | Agriculture et Agroalimentaire Canada

Environment and Climate Change Canada | Environnement et Changement climatique Canada

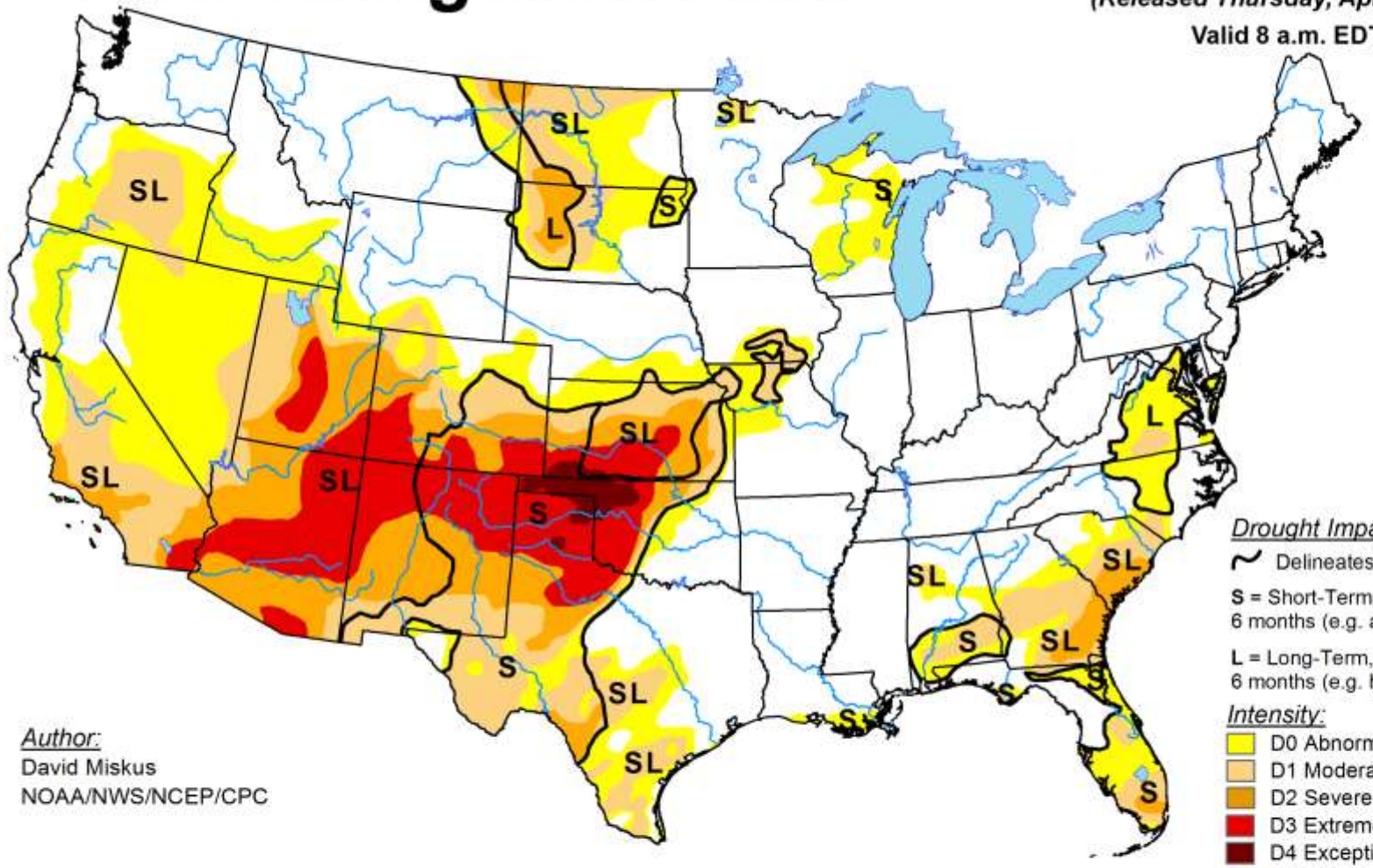

North American Drought Monitor
March 31, 2018
(Released Tuesday, Apr. 10, 2018)
Analysts:
Canada:
Trevor Hadwen
Maginda Magendrathajan
Mexico:
Reynaldo Pascual
Minerva Lopez*
USA:
David Miskus
(* Responsible for collecting analysts' input & assembling the NA-DM map)
Drought not analyzed in shaded areas
SL
How does the NADM get done ???
S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.
USDA
NDMC
CONAGUA
https://www.ncdc.noaa.gov/temp-and-precip/drought/nadm/

U.S. Drought Monitor

April 3, 2018

(Released Thursday, Apr. 5, 2018)

Valid 8 a.m. EDT



Author:
David Miskus
NOAA/NWS/NCEP/CPC

Drought Impact Types:

Delineates dominant impacts

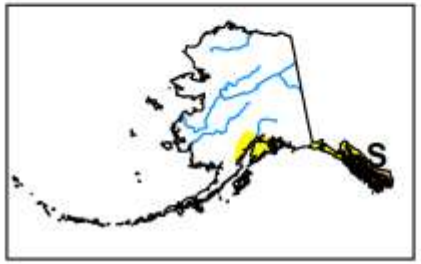
S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)

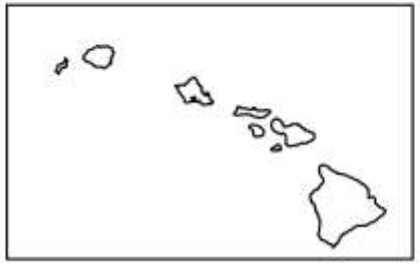
L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

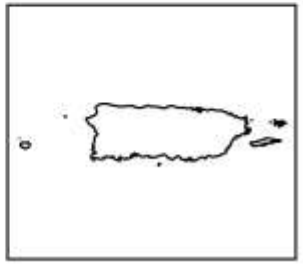
Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.



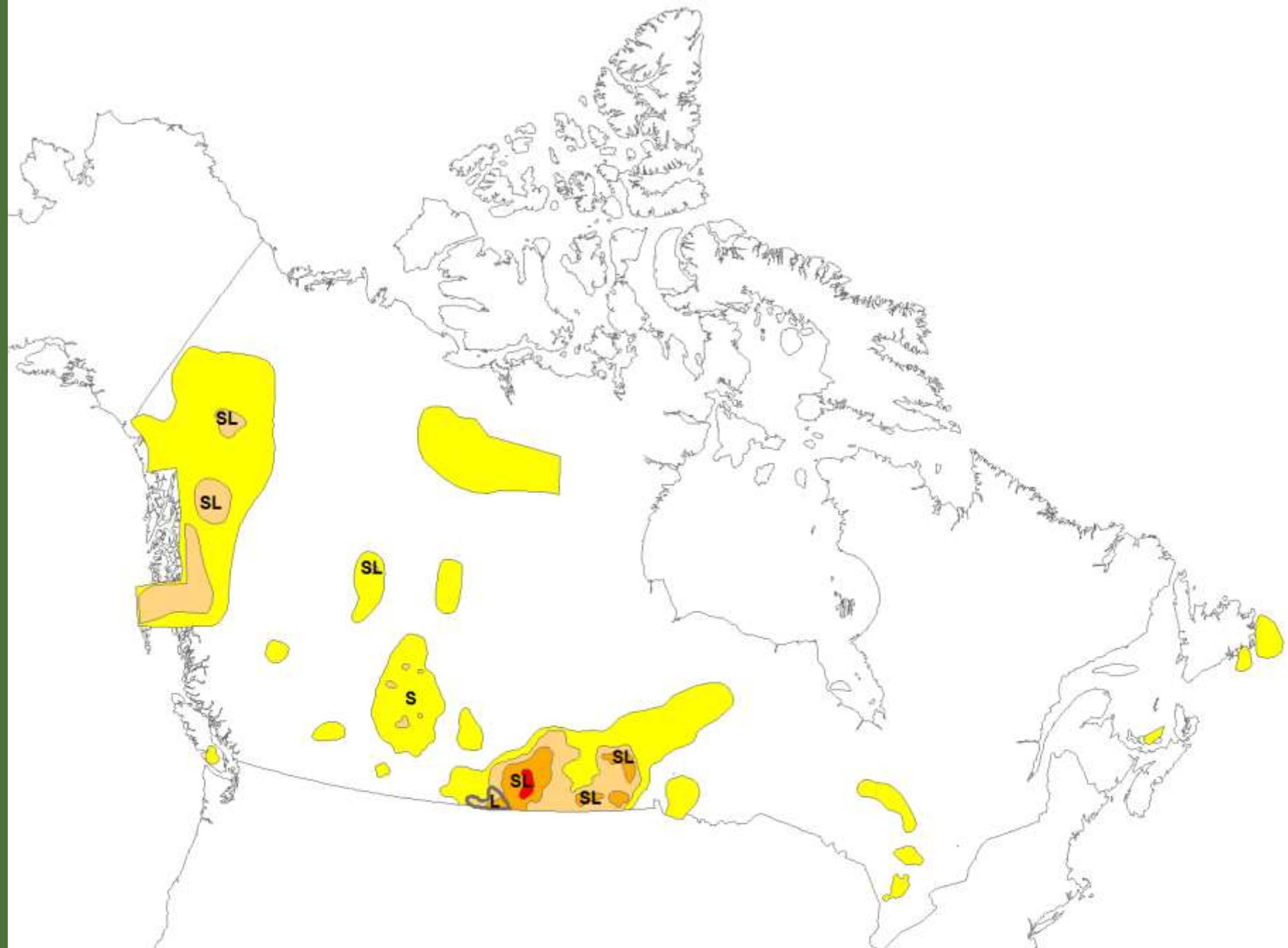




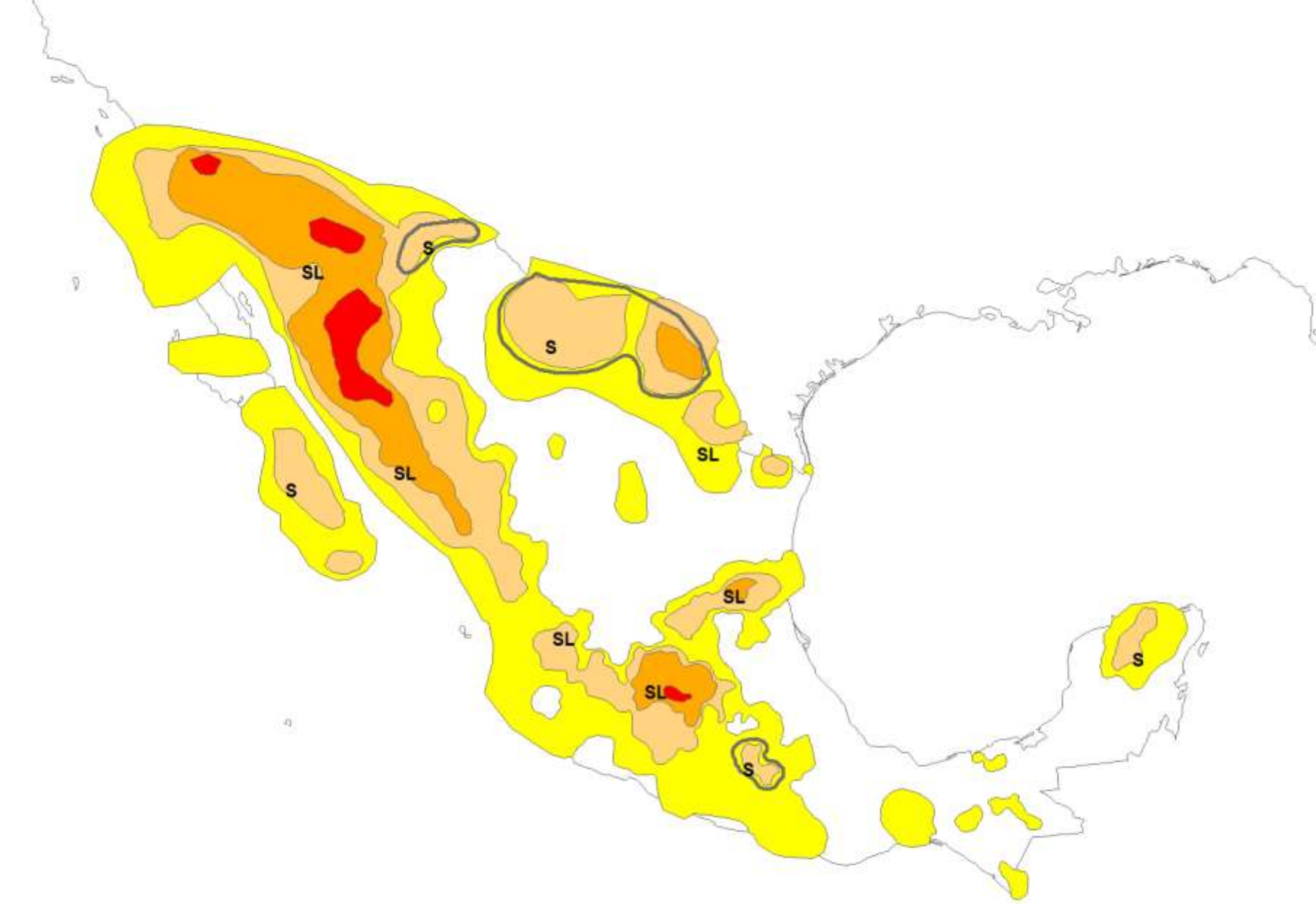
USDA NDMC

http://droughtmonitor.unl.edu/

Canadian Input



Mexican Input

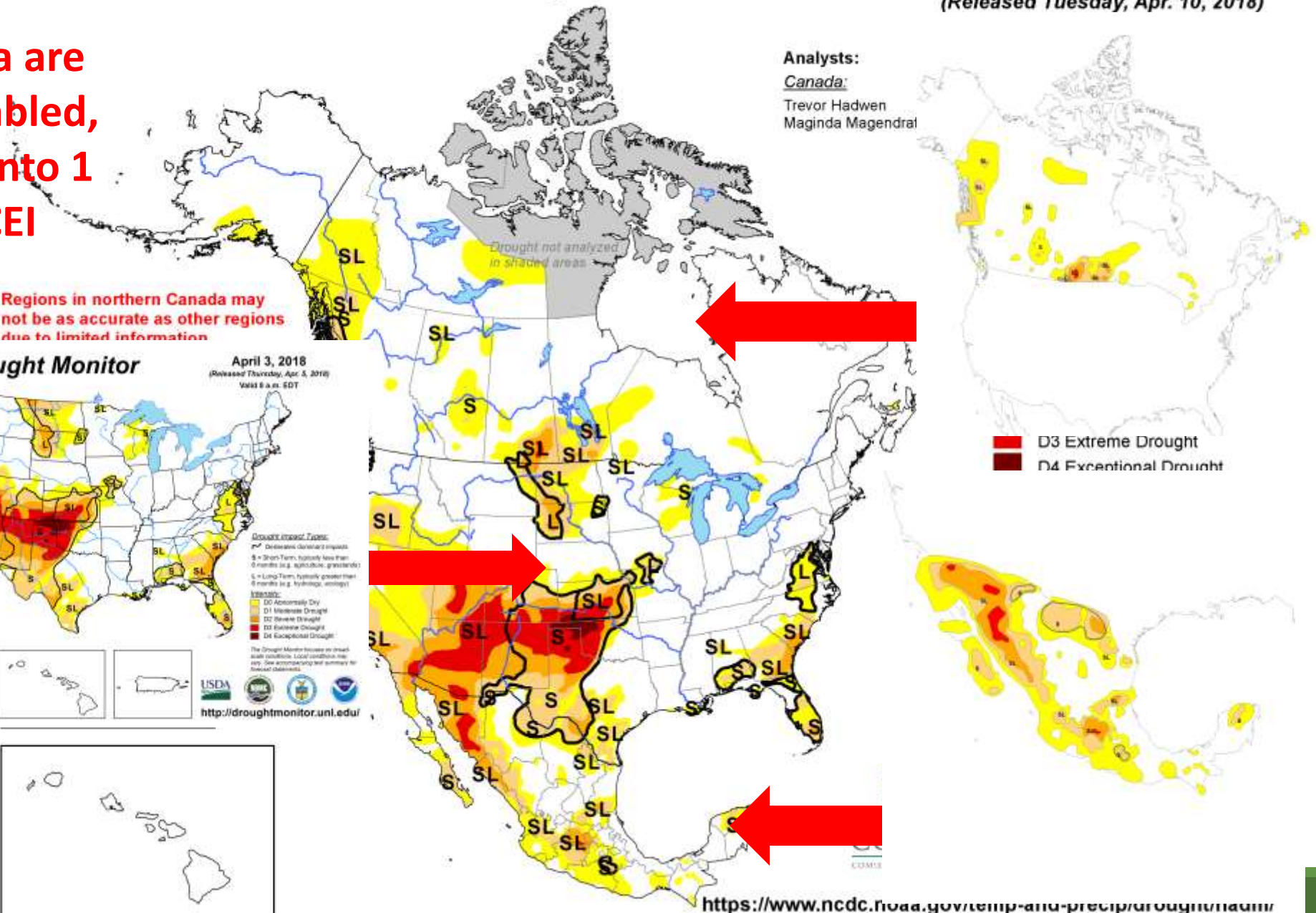


North American Drought Monitor

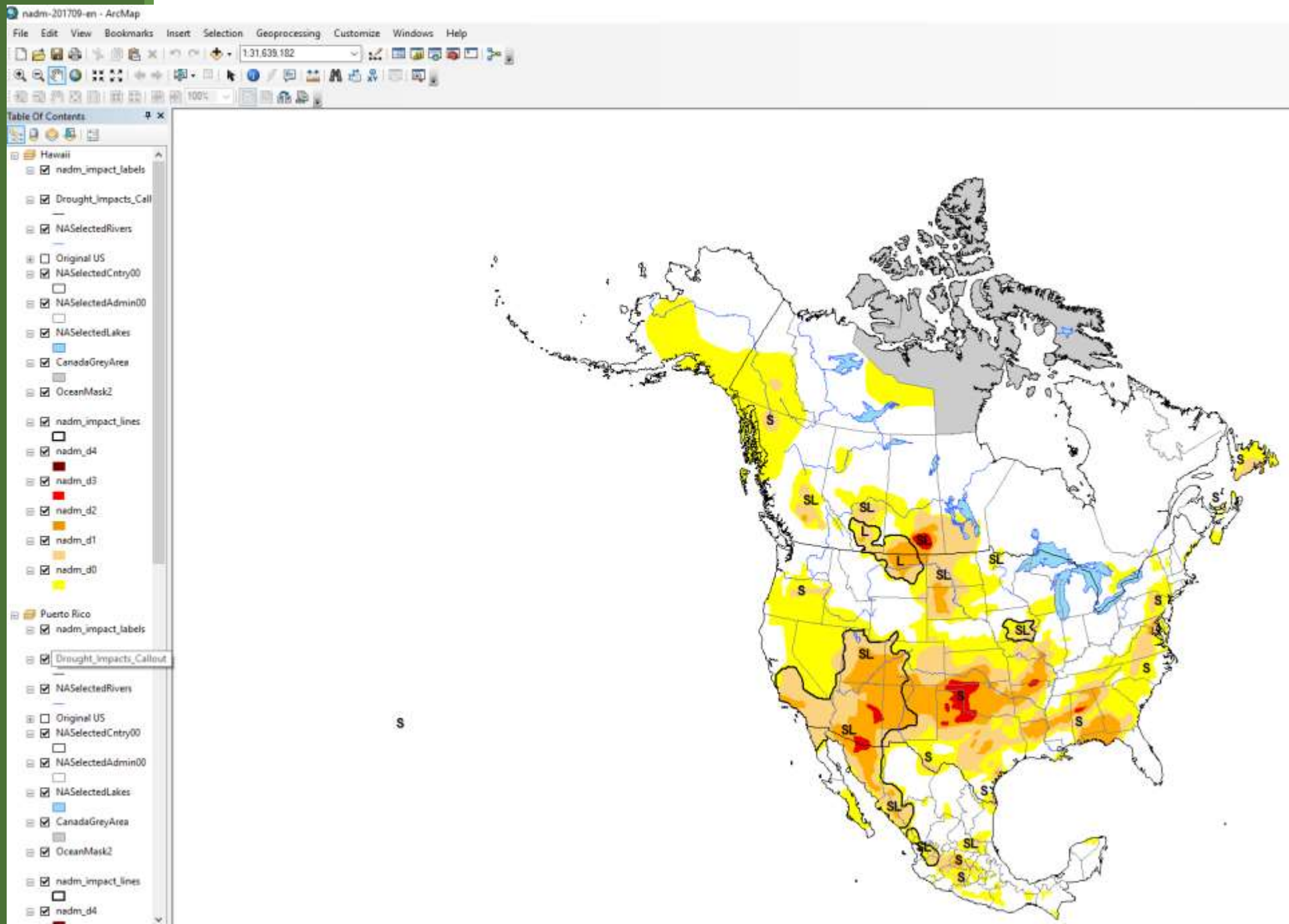
March 31, 2018

(Released Tuesday, Apr. 10, 2018)

Monthly data are gather, assembled, and merged into 1 map at NCEI



All 3 Countries merged together using ArcGIS shapefiles



NOAA NATIONAL CENTERS FOR ENVIRONMENTAL INFORMATION
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

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Home > Climate Monitoring > Temp, Precip, and Drought > North American Drought Monitor (NADM)

April US Release: Tue, 8 May 2018, 11:00 AM EDT

North American Drought Monitor

https://www.ncdc.noaa.gov/temp-and-precip/drought/nadm/

- Climate Monitoring
- State of the Climate
- Temp, Precip, and Drought
- Climate at a Glance
- Extremes
- Societal Impacts
- Snow and Ice
- Teleconnections
- GHCN Monthly
- Monitoring References

Overview | NADM Maps | Indices and Data | Geographical Reference Maps | Climatology Maps

Overview

The North American Drought Monitor (NADM) is a cooperative effort between drought experts in Canada, Mexico and the United States to monitor drought across the continent on an ongoing basis. The program was initiated at a three-day workshop in late April 2002 and is part of a larger effort to improve the monitoring of climate extremes on the continent. The NADM (Lawrimore et al. 2002) is based on the highly successful U.S. Drought Monitor (USDM), and as such, is being developed to provide an ongoing comprehensive and integrated assessment of drought throughout all three countries.

Since its inception in 1999, the US Drought Monitor (Svoboda et al. 2002) has been extremely successful in assessing and communicating the state of drought in the US on a weekly basis. As with the US Drought Monitor, the North American Drought Monitor blends

North American Drought Monitor

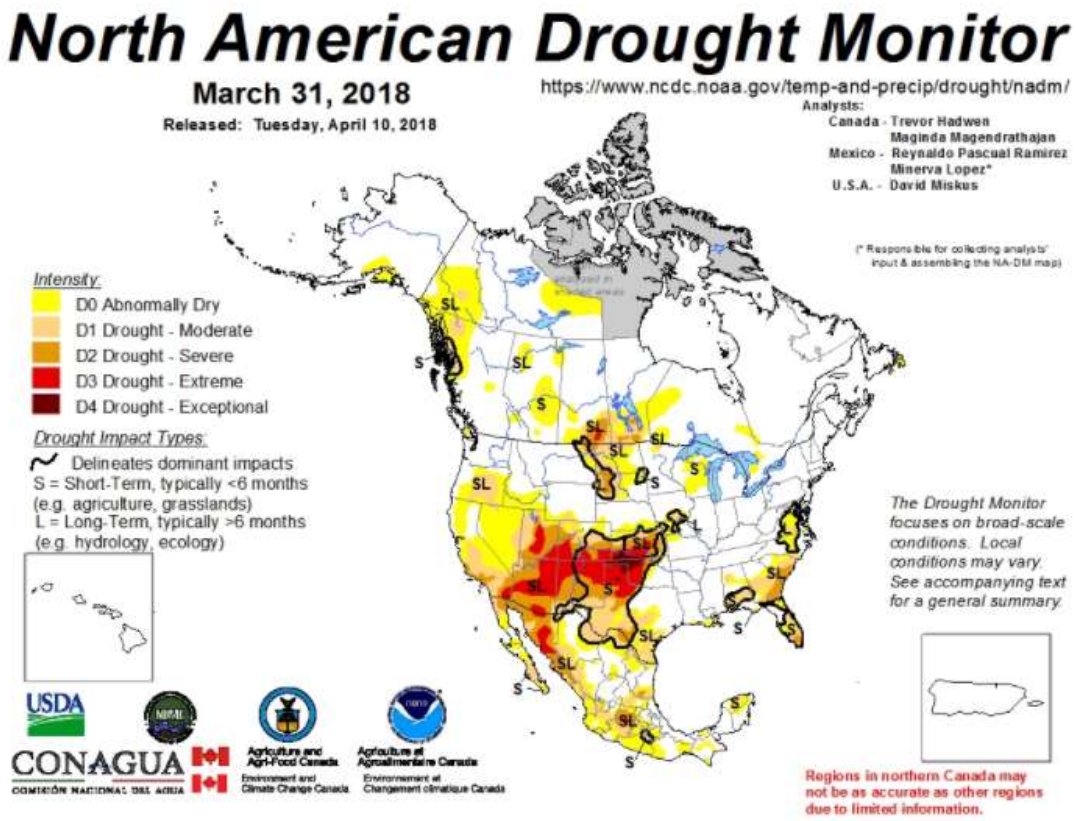
NADM Maps

Monthly North American Drought Monitor maps and text discussions are provided using the form below and are available in English, Spanish, and French from November 2002 to March 2018.

Language: English ▾ Year: 2018 ▾ Month: March ▾ Submit

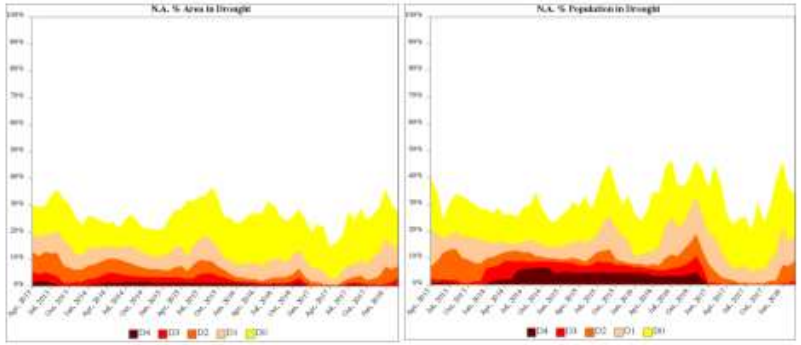
« February 2018

PDF Version of Map Text Discussion



North American Drought Monitor – March 2018

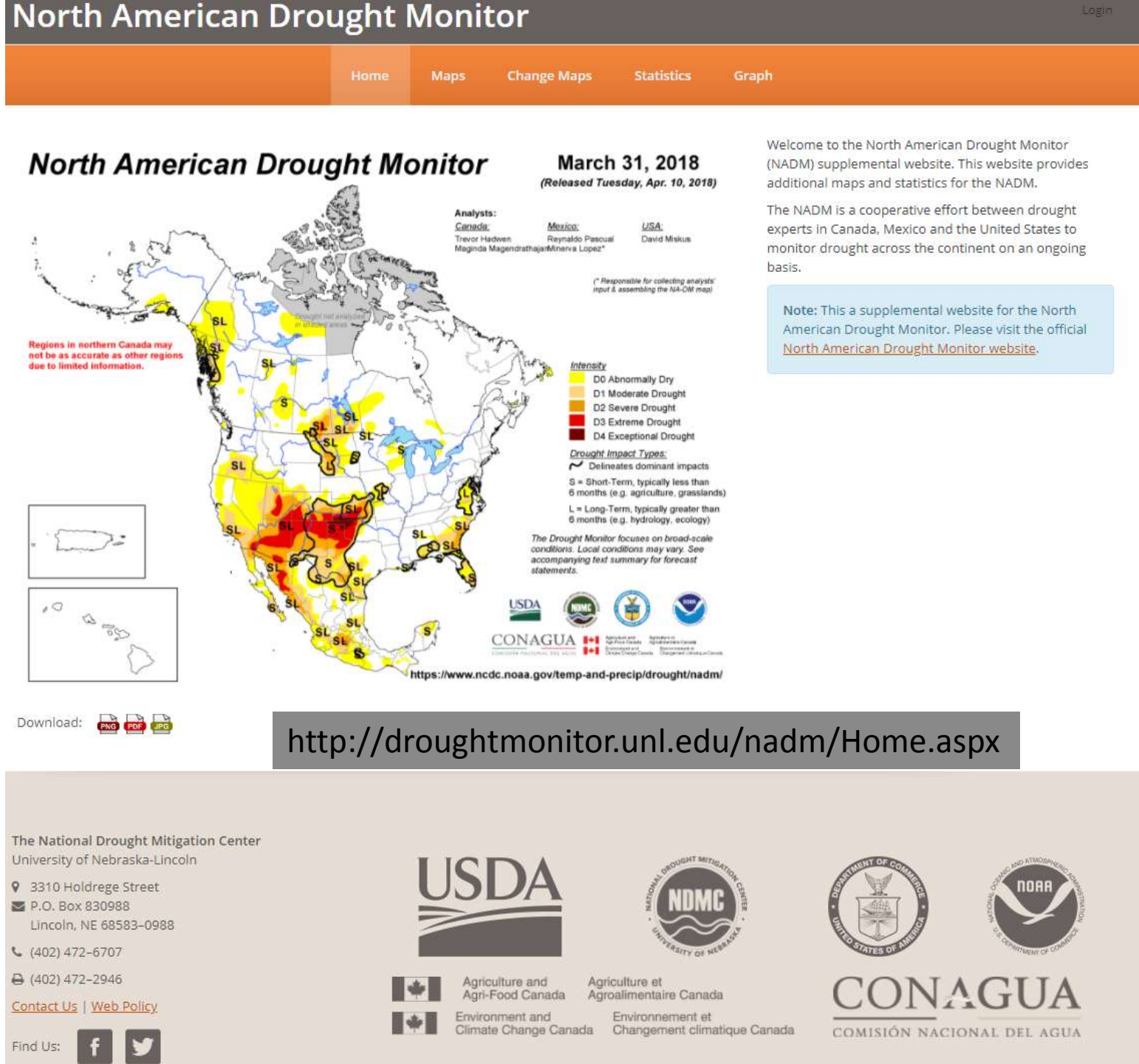
At the end of March 2018, moderate to exceptional drought (D1-D4) affected 14.7 percent of the area and 18.1 percent of the population of North America. The percent area value was 0.4 percent less than the value for the end of February 2018. The percent population value was 2.1 percent more than the value for the end of February. At the end of March, 5.4 percent of the Columbia River Basin and 63.4 percent of the Rio Grande/Bravo River Basin were in moderate to exceptional drought; 12.3 percent of the Great Lakes Basin was abnormally dry (D0); and 38.7 percent of the North American Great Plains was in moderate to exceptional drought. The North American Great Plains extends across the United States and into adjacent parts of northeast Mexico and the southern Prairies of Canada. The percent area of drought in the Rio Grande/Bravo River Basin, and the percent area of abnormal dryness in the Great Lakes Basin, are larger than they were at the end of February. The percent area of drought in the Columbia River Basin and the Great Plains is less than it was at the end of February.



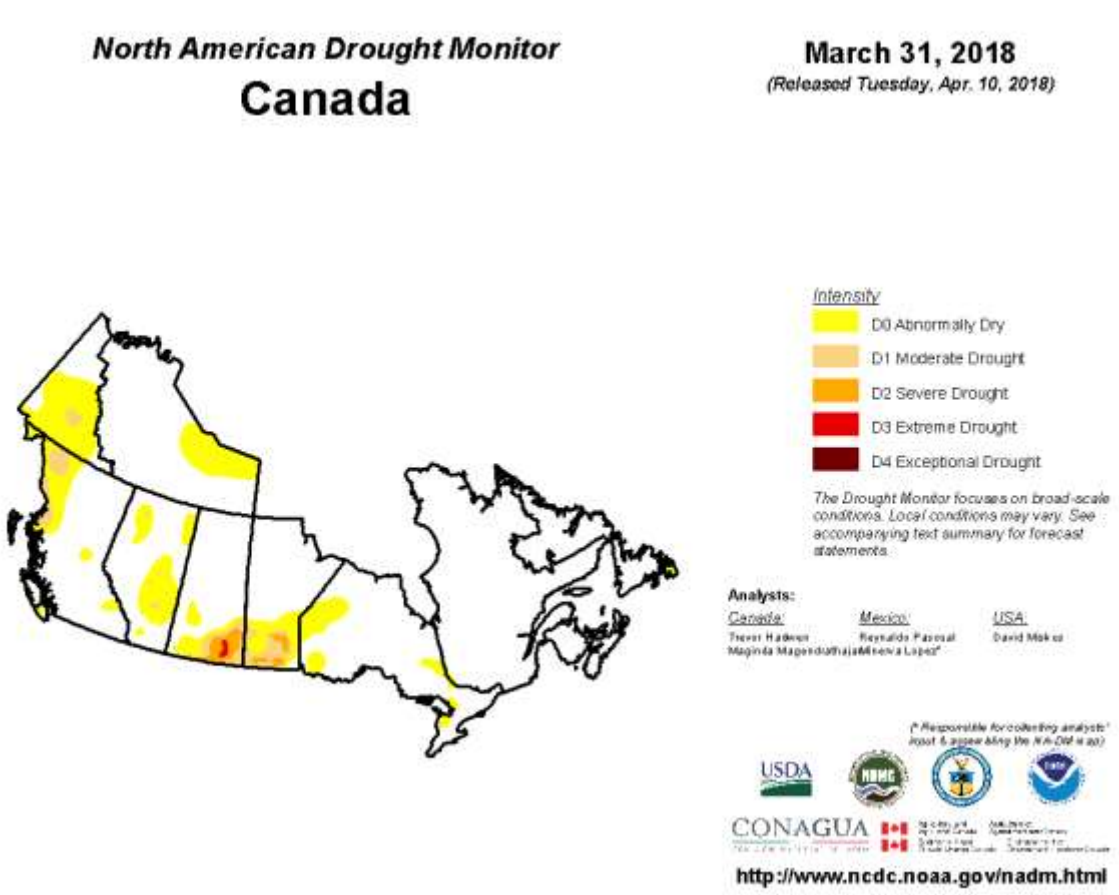
CANADA: Throughout March, drought conditions generally improved across most regions in Canada. Dry conditions in the central interior of British Columbia improved greatly over the month with abundant precipitation, relieving most moisture concerns. Dryness concerns in Alberta expanded to the northern parts of the province. Following a very dry growing season and early winter, relief was finally provided to southern Saskatchewan with two large precipitation events over the month reducing moisture deficits. Drought conditions in southern Manitoba worsened due to persistent precipitation deficits. Precipitation was variable across Central and Atlantic Canada, with dryness emerging in Ontario while conditions continued to remain relatively wet for Québec and Atlantic Canada. Overall, long-term drought conditions remained across the northern regions and the southern Prairies.

Pacific Region (BC)
In the Pacific region, overall conditions improved with some persisting dryness along the coast. Conditions improved greatly along the central interior region, as normal to above

The National Drought Mitigation Center NADM page



Maps and Statistics available for each country as well s each state/provinces



Statistics Table

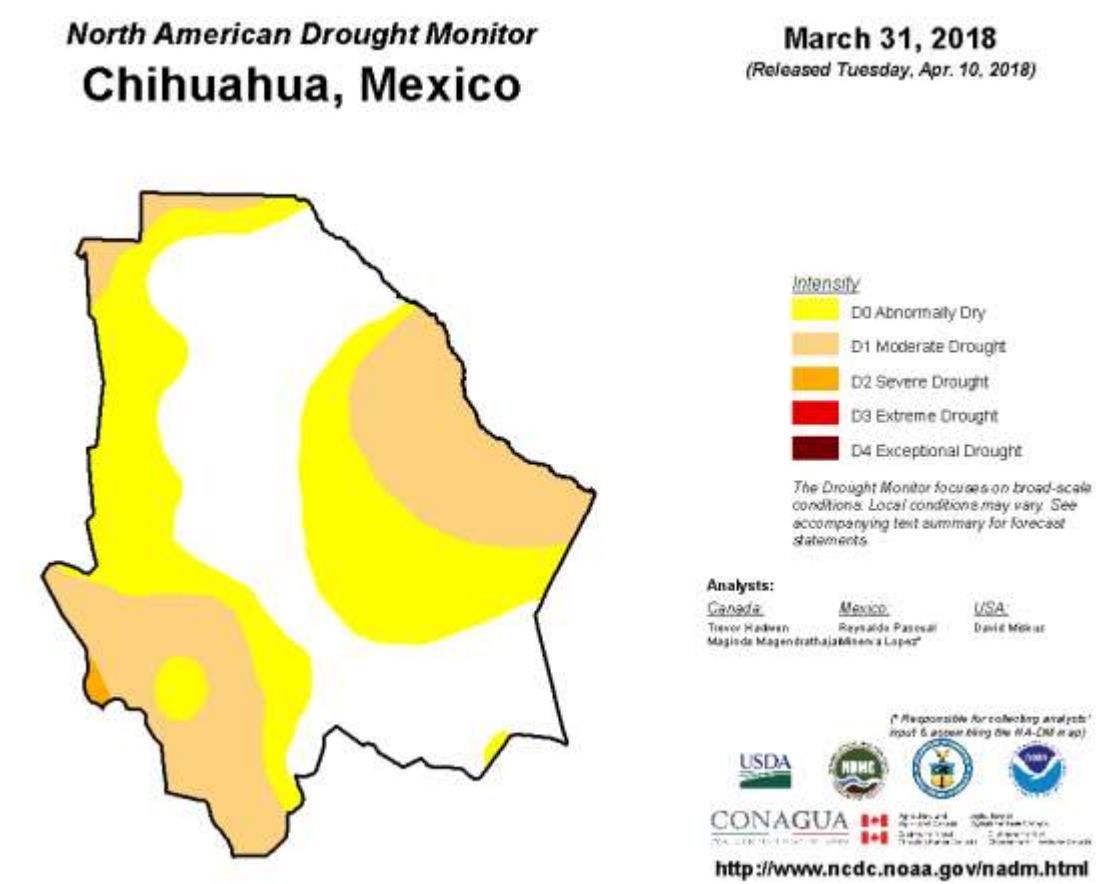
Area Type: Country | Area: Canada | Statistics type: Traditional Percent Area

Percent Area in U.S. Drought Monitor Categories

Show 25 entries | Search:

Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
2018-03-31	66.22	14.99	2.96	1.22	0.11	0.00
2018-02-28	66.05	15.15	4.04	1.52	0.42	0.00
2018-01-31	62.53	18.67	5.39	1.62	0.42	0.00
2017-12-31	63.16	18.05	6.55	2.42	0.87	0.00
2017-11-30	56.60	24.61	9.60	2.76	0.99	0.00
2017-10-31	54.24	26.97	12.65	4.23	1.27	0.24
2017-09-30	50.52	30.69	9.74	7.37	2.16	0.45
2017-08-31	53.65	27.56	8.05	4.23	1.30	0.20
2017-07-31	56.42	24.79	5.32	2.41	0.53	0.00
2017-06-30	69.38	11.83	2.90	0.46	0.00	0.00
2017-05-31	70.12	11.09	0.52	0.00	0.00	0.00
2017-04-30	71.01	10.19	0.57	0.00	0.00	0.00
2017-03-31	65.79	15.42	1.97	0.00	0.00	0.00
2017-02-28	66.72	14.49	1.59	0.00	0.00	0.00
2017-01-31	66.00	15.21	1.65	0.00	0.00	0.00
2016-12-31	65.16	16.05	2.45	0.00	0.00	0.00
2016-11-30	62.82	18.39	2.42	0.31	0.00	0.00
2016-10-31	63.31	17.90	2.59	0.36	0.00	0.00
2016-09-30	62.83	18.38	3.01	0.43	0.00	0.00
2016-08-31	62.67	18.54	4.13	0.58	0.00	0.00
2016-07-31	68.39	12.81	1.80	0.31	0.00	0.00
2016-06-30	60.14	21.07	7.03	1.26	0.00	0.00
2016-05-31	52.46	28.75	4.23	0.06	0.00	0.00
2016-04-30	57.86	23.35	6.47	0.67	0.00	0.00

Maps and Statistics available for each country as well s each state/provinces



Statistics Table

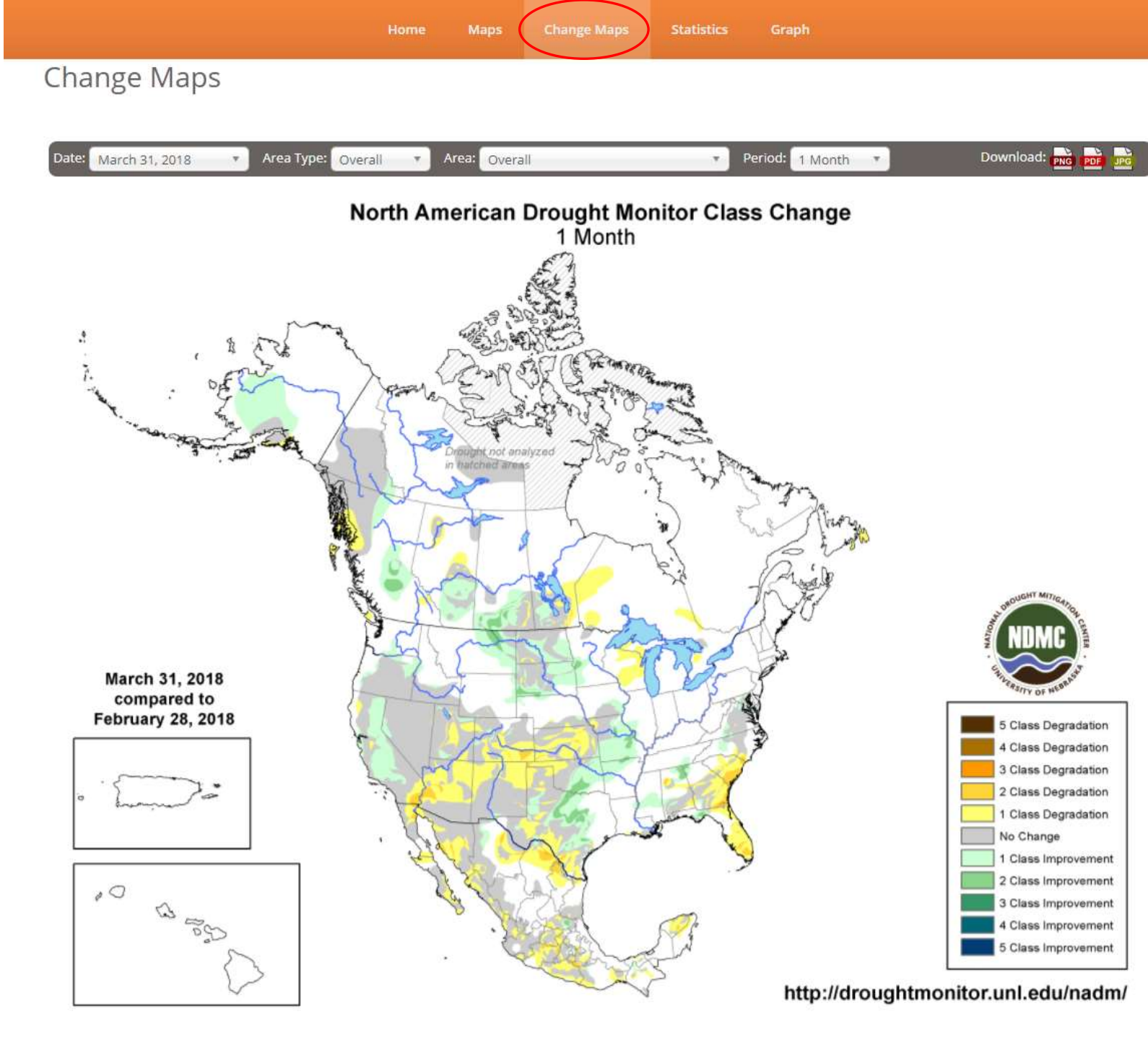
Area Type: State | Area: Chihuahua, MX | Statistics type: Traditional Percent Area

Percent Area in U.S. Drought Monitor Categories

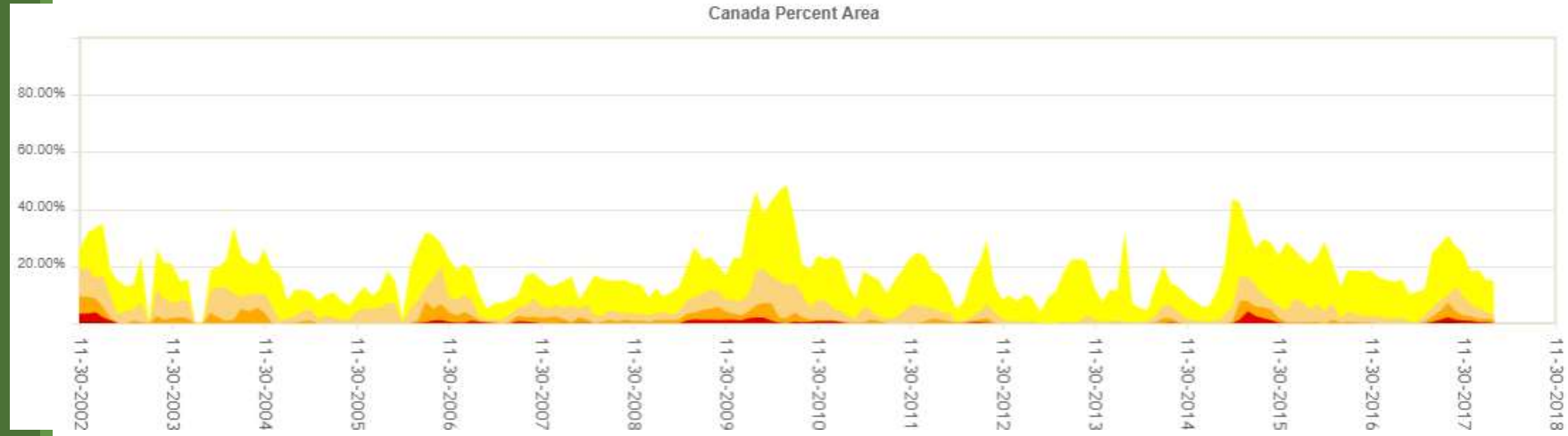
Show 25 entries | Search:

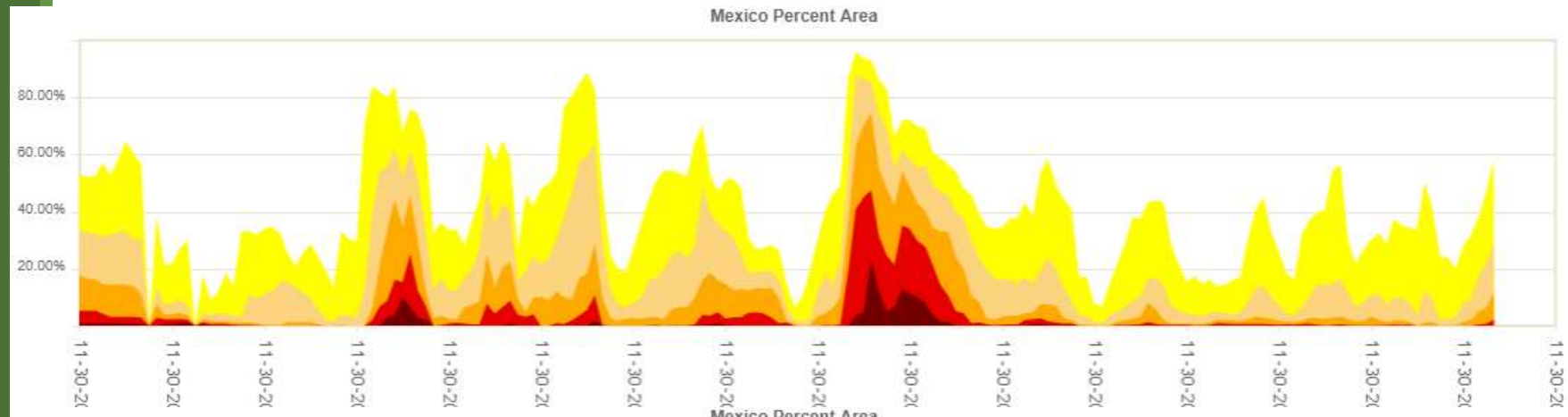
Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
2018-03-31	38.58	61.42	28.37	0.33	0.00	0.00
2018-02-28	44.91	55.09	18.86	0.00	0.00	0.00
2018-01-31	67.41	32.59	12.78	1.29	0.00	0.00
2017-12-31	75.42	24.58	1.91	0.00	0.00	0.00
2017-11-30	78.32	21.68	1.91	0.00	0.00	0.00
2017-10-31	90.29	9.71	0.00	0.00	0.00	0.00
2017-09-30	88.23	11.77	0.00	0.00	0.00	0.00
2017-08-31	98.34	1.66	0.00	0.00	0.00	0.00
2017-07-31	88.47	11.53	0.00	0.00	0.00	0.00
2017-06-30	59.47	40.53	2.72	0.00	0.00	0.00
2017-05-31	77.59	22.41	1.45	0.00	0.00	0.00
2017-04-30	92.48	7.52	0.00	0.00	0.00	0.00
2017-03-31	92.67	7.33	0.00	0.00	0.00	0.00
2017-02-28	95.11	4.89	0.00	0.00	0.00	0.00
2017-01-31	95.20	4.80	0.00	0.00	0.00	0.00
2016-12-31	89.82	10.18	0.00	0.00	0.00	0.00
2016-11-30	92.92	7.08	0.00	0.00	0.00	0.00
2016-10-31	96.78	3.22	0.00	0.00	0.00	0.00
2016-09-30	94.21	5.79	0.00	0.00	0.00	0.00
2016-08-31	92.70	7.30	0.00	0.00	0.00	0.00
2016-07-31	45.60	54.40	2.57	0.00	0.00	0.00
2016-06-30	28.28	71.72	12.73	0.00	0.00	0.00
2016-05-31	26.99	73.01	15.37	0.00	0.00	0.00
2016-04-30	29.65	70.35	15.17	0.00	0.00	0.00

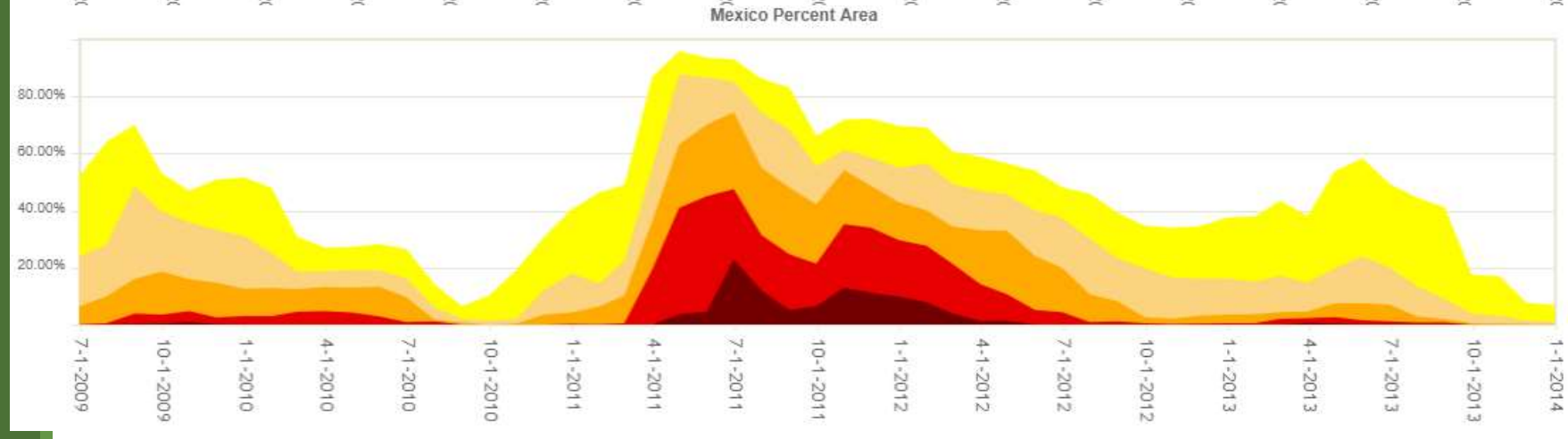
Change Maps Available to compare any 2 periods



Time Series of the NADM statistics are also available







Any Questions ?

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